



Alabama Congressman Bud Cramer chats with the media in the lobby of Building 4200 during a reception in his honor for becoming ranking minority member of the Space and Aeronautics Subcommittee. Photo by Emmett Given

Marshall-Managed MSL-1 Mission to Launch Thursday

NASA's continuing effort to understand the subtle and complex phenomena associated with the influence of gravity in many aspects of our daily life will be the focus of the upcoming Marshall-managed STS-83 Microgravity Science Laboratory (MSL-1) mission.

"All the science teams are trained and ready to support the mission," said MSL-1 Mission Manager, Teresa Vanhooser. "Were looking forward to Thursday's launch and an exciting mission."

Scheduled to launch at 1:01 p.m. CST Thursday from Kennedy Space Center on a planned 16-day mission, the flight will involve Shuttle Columbia and her seven astronauts conducting a variety of experiments to examine how various materials and liquids change and behave in the weightless

environment of space.

Science operations aboard the Columbia will be controlled and managed from the Spacelab Mission Operations Control Center at Marshall.

The STS-83 crew includes Commander Jim Halsell, Pilot Susan Still, Mission Specialists Janice Voss, Mike Gernhardt and Don Thomas; and Payload Specialists Roger Crouch and Greg Linteris.

continued on page 5

New External Tank Completes Major Pressure Tests

The first new, super lightweight, external fuel tank for the Space Shuttle is set for final assembly after successfully completing proof pressure tests that verify its design. The achievement is a significant step toward the first launch of the International Space Station.

The new external tank is the same size as the one currently used on the Space Shuttle — but about 7,500 pounds lighter.

"Each pound we remove from the external tank is a pound that can be added to the payload," said Parker Counts, manager of the External Tank Project at the Marshall Center. "The lighter tank is essential for launching Space Station because the Station components will be assembled in a more demanding orbit than previously planned."

The 154-foot-long external tank, higher than a 15-story building and as wide as a silo with a diameter of about 27 feet, is the largest single component of the Space Shuttle. The external tank holds the liquid hydrogen and liquid oxygen propellants in two separate tanks

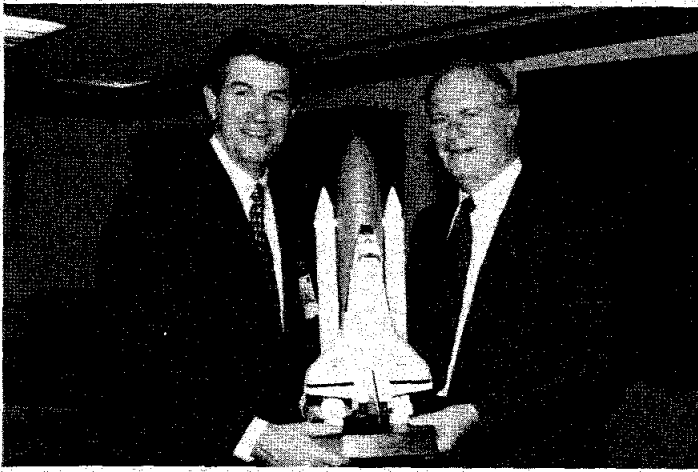
for the Shuttle's three main engines.

The two major changes to the external tank involve materials and design. Both the liquid hydrogen tank and the liquid oxygen tank are constructed of aluminum lithium — a lighter, stronger material than the metal alloy used for the Space Shuttle's current

continued on page 2



Sen. Jeff Sessions of Alabama is shown fabrication work on the International Space Station by Boeing's Debbie Springer during the senator's visit to the Marshall Center last week. Photo by Emmett Given



Alabama Congressman Bob Riley (left) receives a memento from Center Director Dr. Wayne Little during a visit last week.

Photo by Emmett Given

Workplace Violence Targeted by Zero Tolerance Policy

Violent acts in the workplace have become increasingly common, as anyone who follows news reports is well aware. Although there is a tendency to think that "it can't happen here," the Marshall Center has, in fact, had instances of threatening behavior in the past several years.

Center Director Dr. Wayne Little has emphasized in a message to all employees that "The Center places the highest priority on the health and safety of its employees. In this regard, we have a zero tolerance policy for intimidation, threats, harassment, or violence of any kind in the workplace. Each employee," Little said, "has a personal responsibility to avoid behavior that could provoke hostile situations."

Employees observing any potentially threatening behavior should advise an appropriate supervisor as soon as possible. Emergency situations should be reported immediately by dialing 911.

continued on page 5



Members of the Engineering Management Support Office show off T-shirts they purchased in support of the Law Enforcement Torch Run to be held in Huntsville April 18th. Proceeds from the purchase of T-shirts benefit Special Olympics activities. The employees who purchased shirts were joined for a photo by Officer Ben Jennings of the Huntsville Police Department.

Photo by Emmett Given

New External Tank

from page 1

external tank.

The tank's structural design also has been improved. The walls of the redesigned hydrogen tank are manufactured in an orthogonal waffle-like pattern, providing more strength and stability than the previous design.

"The new external tank has passed one of the most innovative structural verification test programs ever designed, culminating with these proof tests," Counts said.

The proof test for the liquid oxygen tank was a hydrostatic, or water pressure, test. The tank was placed vertically on the test stand at NASA's Michoud Assembly Facility in New Orleans and filled with water, which has similar density to liquid oxygen. The tests simulated conditions encountered during flights and validated the design changes.

The liquid hydrogen tank was pressurized with gaseous nitrogen and subjected to conditions simulating the thrust of the orbiter's main engines and solid rocket boosters. Tests checked the new design by exposing the tank to harsher conditions than it will encounter in flight.

After the tests, comprehensive X-ray and dye penetrant inspections will be performed to further verify the tank's flight worthiness.

The proof tests completed March 25 were the final in a series of rigorous certification and structural verification tests.

"Our team of dedicated employees — both at Marshall and Lockheed Martin Corporation — completed the ambitious task of designing and building the improved external tank and verifying its design," said Counts.

"All of this was achieved successfully on a tight schedule of about three-and-a-half years. They pushed the state of the art of test technology, looking beyond current program requirements and squeezing all the information possible out of each test to understand the capability of the new tank," he added.

After thermal protection foam is sprayed on its exterior, the first super lightweight tank will be shipped by barge from Louisiana to Kennedy Space Center in Florida for its launch with the first elements of the International Space Station.

Center Hosts Next Meeting of NASA Alumni League

Marshall Center Director Dr. Wayne Little will host the next meeting of the NASA Alumni League on April 8 from 8:30 a.m. to 12:15 p.m. in Building 4200, Room P110. The program will consist of an Alumni League business session and an update on Marshall programs and activities.

Marshall alumni are invited. Those planning to attend should contact Mary Rutledge at 4-5252.

MSL-1 Mission

from page 1

The MSL mission will serve as a bridge to America's future in space – the mission spanning the gap between the relatively short duration work done on today's Shuttle Spacelab flights to the long duration research that will be performed on the International Space Station.

MSL-1 will test some of the hardware, facilities and procedures that will be used on the International Space Station. It will introduce new procedures designed to place scientific payloads into orbit in a shorter amount of time than previously possible. The MSL-1 flight will serve as a test-bed for new ways to conduct experiments in space — helping to validate and improve that process. New methods of integrating experiments and equipment will be introduced, requiring new procedures at every step.

The STS-83 flight mirrors the future work aboard the Space Station in the international complexion of the flight. MSL-1 is bringing together academic, industrial and governmental partners from around the world. Scientists from four space agencies developed 33 investigations for the MSL-1 mission. Representatives of the European Space Agency, the German Space Agency and the National Space Development Agency of Japan are joining NASA and scientists throughout the United States in this research mission.

The STS-83 mission will introduce some new experiment facilities, designed to give scientists additional tools for finding answers in the microgravity of space. One such new component on MSL-1 is the innovative EXPRESS Rack, managed by Marshall Center, standing for "EXpedite the PROcessing of Experiments to the Space Station." "Express Rack is designed for quick and easy installation of experiment and facility hardware on orbit and will provide the same structural and resource connections the rack will have on ISS", said project manager Annette Sledd of Marshall's Payload Projects Office.

The work performed on the MSL-1 flight has direct impact to life back on Earth. The protein crystals being grown on the flight may help scientists better understand the structure of various diseases and possible cures. The experiments designed to examine the combustion process which will help improve the design of more efficient, clean-burning combustion engines and shed light, as well, on issues of fire safety. The materials science investigations will help researchers understand how the structure of a material forms and how this structure affects the material's properties with implications from electronic materials, to the strength or resistance to corrosion of some materials, to how flaws in glasses and alloys can make them crack or break more easily.

STS-83 will be the 22nd Flight of Columbia and the 83rd mission flown since the start of the Space Shuttle program in April 1981.

ISO 9000 Overview Successful

The Training Branch provided an ISO 9000 Employee Overview to more than 1,700 MSFC employees during the week of March 17,



MARSHALL SPACE FLIGHT CENTER
MSFC policy is to provide quality products and services to our customer.

making a total of more than 2,100 MSFC employees who received training required for ISO 9000 registration.

As a follow-up to receiving the overview, officials are encouraging that employees log on to the ISO 9000 home page via Inside Marshall (<http://www/inside>), to Centerwide Initiatives and ISO 9000, for a special message to all employees.

The ISO 9000 Implementation Team has drafted all the system level procedures that will govern the way Marshall does business under ISO 9000. The team is stressing that all employees have the chance to influence the content of the procedures. The team is asking all employees to take a few minutes to read the instructions and provide their input to this important stage of our registration.

Zero Tolerance

from page 2

Littles pointed out that the Marshall Employee Assistance Program is available to employees and their family members for help with a wide variety of personal problems. Also, various short training courses and instructional materials on coping with difficult situations are available through the Personnel Office, Training and Development Division. These include a video on how to recognize and deal with threatening situations in the workplace. The video is available for checkout from the Employee Development Technology Center (544-2817).

Obituaries

Duren, Paul, 79, Arab, died March 11. He retired from Marshall in 1975 where he worked in the EH Laboratory as a mechanical engineering technician.

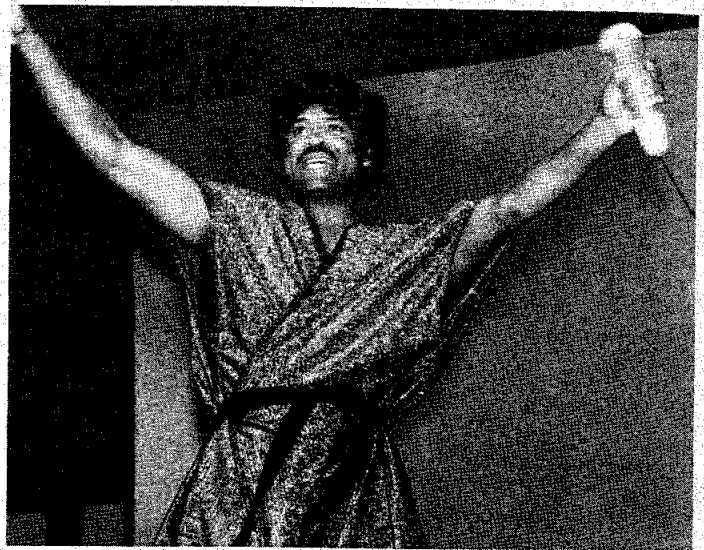
Haley, Lawrence, 74, Huntsville, died March 13. He retired from Marshall in 1972 where he worked in flight systems.

Hill, William, 67, Huntsville, died March 10. He retired from Marshall in 1990 where he worked in the EH Laboratory.

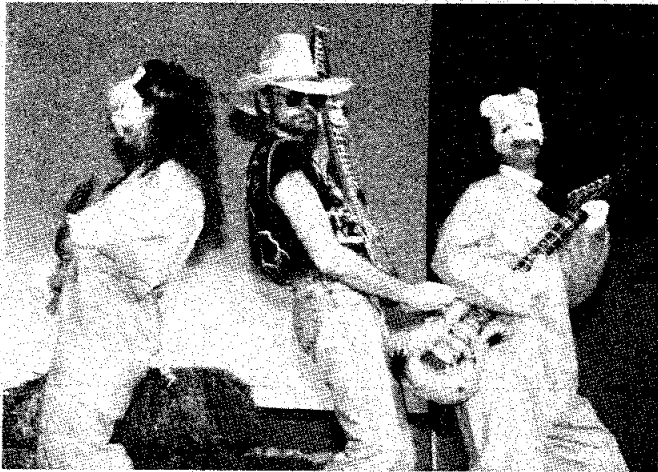
Watson, Charles, 68, Huntsville, died March 19. He retired from Marshall in 1986 where he worked in the structures and mechanics division.



Nurse Judy Arnold will have a "Celebration" after caring for Jim Ellis and Steve Creech.



Joe Gaines performs "Hot Tub."



Dana Tipton, Gary Lyles and Katela White are just "Hog Wild."



Sherm Jobe enjoys the show with his wife Joyce.

MMA to Offer Four Merit Scholarships

The Marshall Management Association Merit Scholarship, an award offered by the organization to recognize academic achievement and leadership qualities of sons and daughters of Marshall civil service employees and retirees, will award four \$1,500 scholarships to students this year. Two will be offered to graduating high school seniors entering an accredited college or university in the fall of 1997, and two will be offered to freshmen who are presently enrolled in an accredited college or university during the 1996/1997 school year.

The association will select the scholarship recipients in May. Financial need will not be a factor. Additional information and applications are available in Room 31 of Building 4250 or by calling 544-3221. The deadline for submitting an application is April 15.



A finale of finales....until next year.

Annual Retiree Banquet

1997 'Caper Chase' Revue

Highlighted by Talent, Fun



Angela Lovelady shows Center Director Dr. Wayne Littles how to "Think."



Dave Carstens "Ain't Gonna Bump No More" — especially with Ruthie Adams.



Bill Brewster goes wild as "Guitarzan" with Jack and Jean Lee and J. A. and Mackie Bethay



"Splish Splash," Bill Hicks was taking a bath on a Tuesday night.



Banquet goers watched Carlos Smiley and others get down to the beat of "Dancing Machine."



Dave Bates and his group "Heard it through the Grapevine."

Employee Ads

Miscellaneous

- ★ Several Beanie Babies for sale, price range \$10-20 each. 539-7834
- ★ Aerobic Equipment "The Step" \$35; mini trampoline \$15; king snake golf clubs, 3-PW \$125. 881-1718
- ★ Two NASCAR tickets for Busch and Supertruck races in Nashville, face value, must sell. 461-7434
- ★ Tennis racquets; Wilson Prostaff 5.5 \$55; Prince Precision \$30; Wimbledon \$25; Pro-Kennex \$20; Head \$10. 351-1889
- ★ Dinette, glass top, four chairs \$100; men's Huffy bicycle \$75. 851-6661
- ★ Brown-tone electric lift chair \$150. 773-2774
- ★ Windsurfer Mistral Pandera complete with sail \$250. 205-232-1940
- ★ 1983 Seasprite ski boat 18', 188 HP, I/O, mercruiser trailer. Skis dry stored \$3,500. 536-0580
- ★ Jenn-air grill and cooktop \$200; GE built-in oven \$150; Amana microwave \$50. 895-9589
- ★ Black sequined prom dress worn once, size 13/14 \$65. 533-7985
- ★ Mazda bug deflector for the front hood. Brand new \$125. 890-0297
- ★ Sears dual track 20 exerciser, 210 pounds weight cost \$430, will sell for \$150. 883-8664
- ★ Panasonic VCR, 4-head, stereo, needs new head \$35; Amana microwave 1500 watt \$40. 895-4520
- ★ 3 1/2 ton central air conditioner, 11 year old Carrier \$500 o.b.o. 539-7139
- ★ 14 ft. Crosby sled, 40 HP Johnson motor, trailer, 1967 model \$1,600 o.b.o. 539-7139
- ★ 1 ton arbor (bearing) press \$31; Little Tikes swing seat with ropes \$10. 881-6040
- ★ One year old cherrywood dining room set (china cabinet, dining table, six chairs), Never used \$1,850. 881-4094
- ★ Ross 21 speed mountain bike new in box mens frame \$200. 721-1052
- ★ Norge dryer \$100; playpen \$25; baby stroller \$30; and infant walker \$15. 776-0022

Vehicles

- ★ 1989 Fleetwood Cadillac Brougham, 1 owner, new motor installed by local dealer \$5,495. 353-5106
- ★ 1987 Lincoln Continental 4-door graphite grey 134K, \$3,850. 205-776-6943
- ★ 1987 Chevy Astrovan CL, V6, PW, cruise \$4,200. 837-8251
- ★ 1996 Mazda B3000 Pickup truck, 8K, \$11,800 firm. 890-0297

Free

- ★ Cocker Spaniel, neutered, blond male, 9 years old, indoor/outdoor. Shots current. 851-6661

Found

- ★ Found ladies gold bracelet in Building 4203 elevator, call 4-7093 to identify.
- ★ Found Hewlett-Packard calculator in Building 4203, call 4-4758 to identify.

Wanted

- ★ All or slide portion of child's swingset. Will pick up. 828-5879

Center Announcements

- ★ **Toastmasters** — Redstone Toastmasters International will meet every Tuesday at 6 p.m. in the Morrison's Cafeteria in Madison Square Mall. For more information call 461-0476.
- ★ **Spring Dinner Dance** — Tickets for the April 12 Ballroom Dance are now on sale by the MARS Ballroom Dance Club. The semi-formal event will be held in the VBC West Hall and will feature ballroom music by the Barry Orth Combo. Socializing will begin at 6:30 p.m., buffet dinner will be served at 7 p.m., followed by dancing from 8 to 11:30 p.m. Tickets are \$18 per person with a \$3 discount for members; they can be purchased from Tamara Landers (4-6818), Pat Sage (4-5427), Ed Ogozalek (837-1486), and Bob Williams (4-3998). Reservations for a table of 8 can be made by calling Woody Bombara (650-0200).
- ★ **Toastmasters International** — Toastmasters International will have a

lunch meeting each Tuesday from 11:30 a.m. to 12:30 p.m. in Building 4610 cafeteria conference room.

- ★ **College Scholarships** — The NASA Scholarship Fund and the Marshall Management Association (MMA) are accepting college scholarship applications for children of Marshall employees. NASA applications, due March 31 are available in Bldg. 4200, Room 206, or from the Exchange Office in Bldg. 4752. MMA applications are due April 15, available in Bldg. 4250, Room 31. NASA will award five \$2,000 scholarships and the MMA will award two \$1,500 scholarships.
- ★ **Federal Almanac Order** — Please pick up your 1997 Federal Employee Almanacs at the MESA Office, Bldg. 4471, Rm. C105 between 8:30 a.m. - 12:30 p.m. The cost is \$9 (\$8 for MESA members). Bookstore cost is \$11.95 plus tax.
- ★ **Facilities Retirees** — Facilities Office Retirement Breakfast at Shoney's restaurant on April 8 at 8:30 a.m. on University and Parkway. Call 4-7855 for more information.
- ★ **Local Sealed Bid Sale** — A local Sealed Bid Sale of government surplus property will be held April 11 at the Defense Reutilization and Marketing Office, Warehouse Rd., Redstone Arsenal. Inspection is April 8, 9, & 10 from 8 a.m. to 3 p.m. Bids must be submitted by 3 p.m. April 10. To view material for the sale or for further information call E. Russell at 955-0297 or D. Davis at 842-2570.

Job Opportunities

CPP 97-13-CP, AST Basic Properties of Materials, GS-1310-14, S&E, Space Sciences Lab, Micro-gravity Science & Applications Div., Biophysics Br. Closes April 14.

CPP 97-14-CP, AST, Basic Properties of Materials, GS-1310-15, S&E, Space Sciences Lab, Micro-gravity Science & Applications Div., Biophysics Br. Closes April 14.

MARSHALL STAR

Marshall Space Flight Center, Alabama 35812

The Marshall Star is Published every Wednesday by the Public Affairs Office at the George C. Marshall Space Flight Center, National Aeronautics and Space Administration. Contributions should be submitted no later than Friday noon to the Marshall Public Affairs Office (CA10), Building 4200. Submissions should be written legibly and include the originator's name. The Marshall Star does not publish commercial advertising of any kind.

Writer-Editor — Angela D. Storey
Editorial Assistant — Betty Humphrey
Director, Media Services — David B. Drachlis
Director of Public Affairs — John B. Taylor
U.S. Government Printing Office 1997-532-111-60005

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